ET150396349US

Figure 1

Brokenshire et al.
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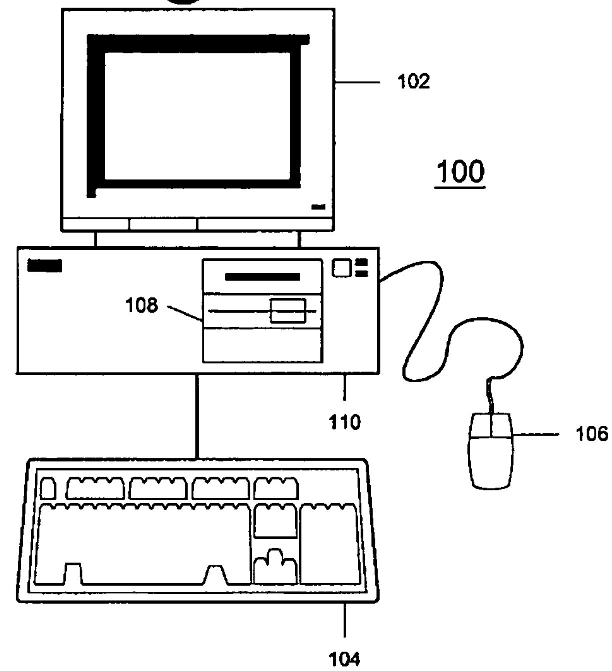

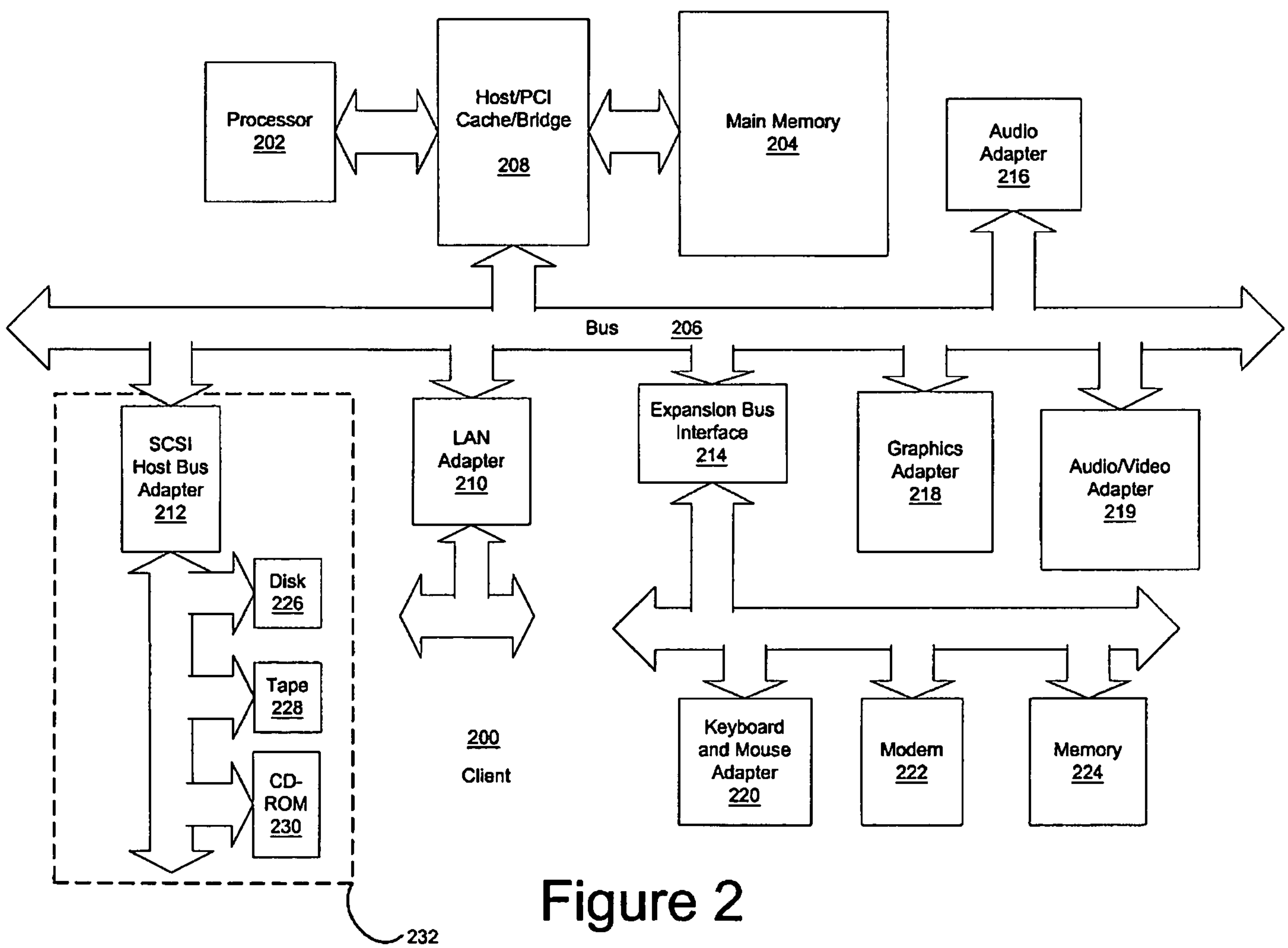

Figure 2

Figure 3

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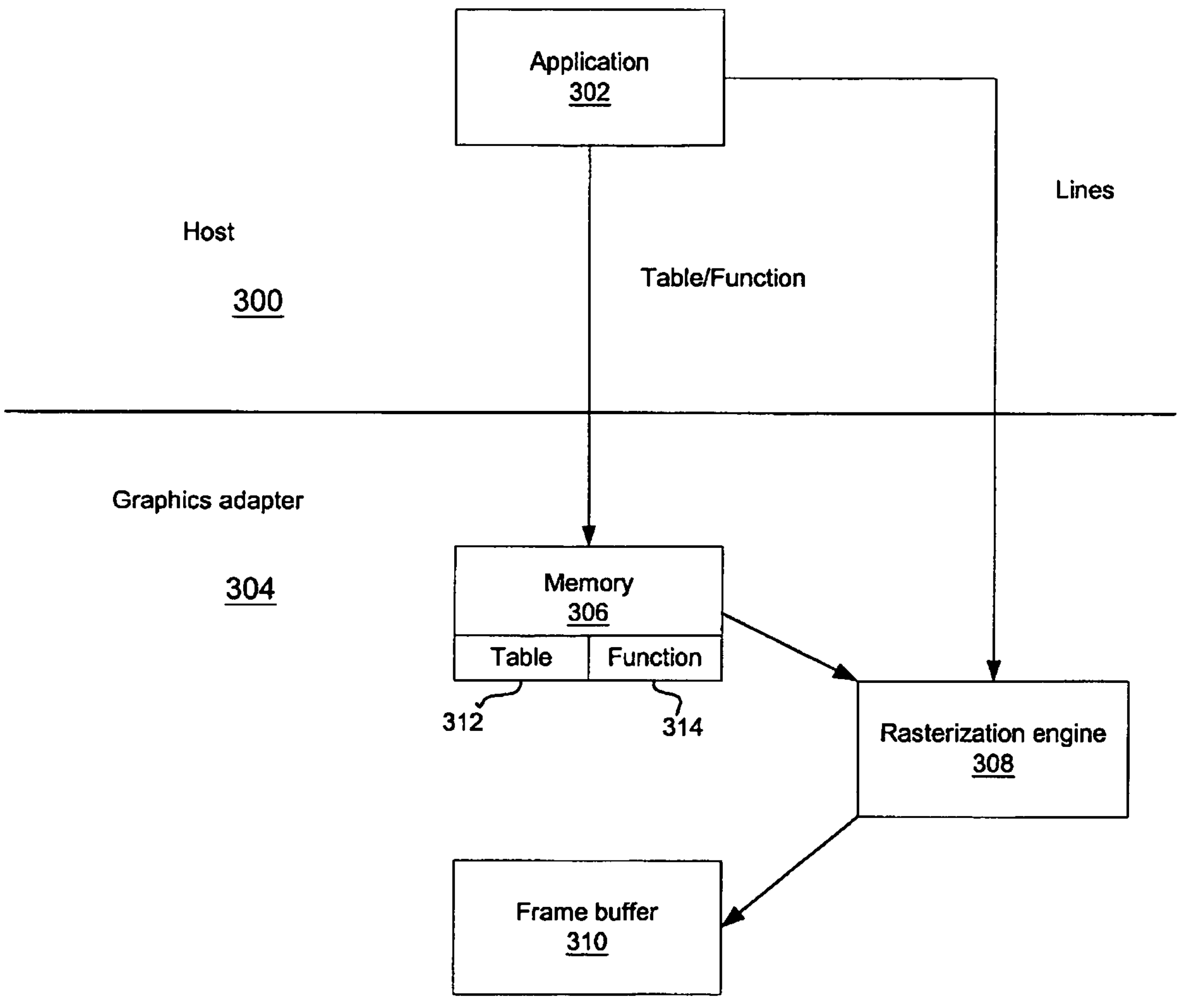

Figure 4

Brokenshire et al.
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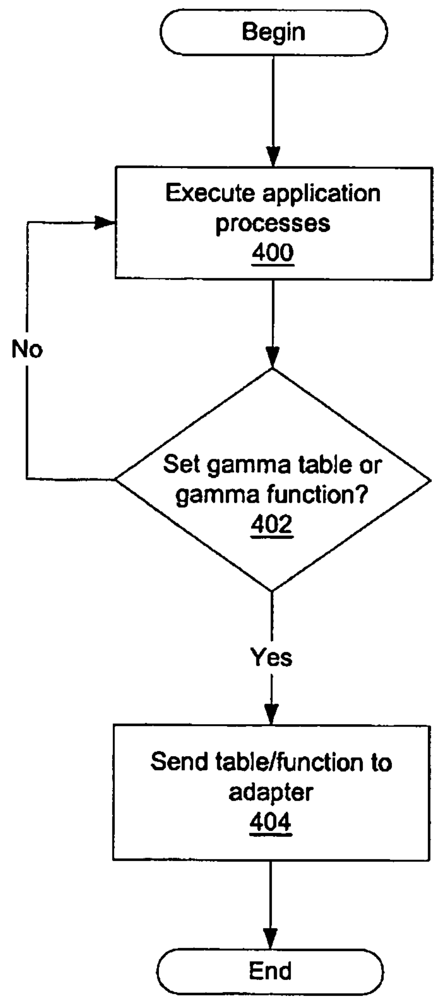


Figure 5

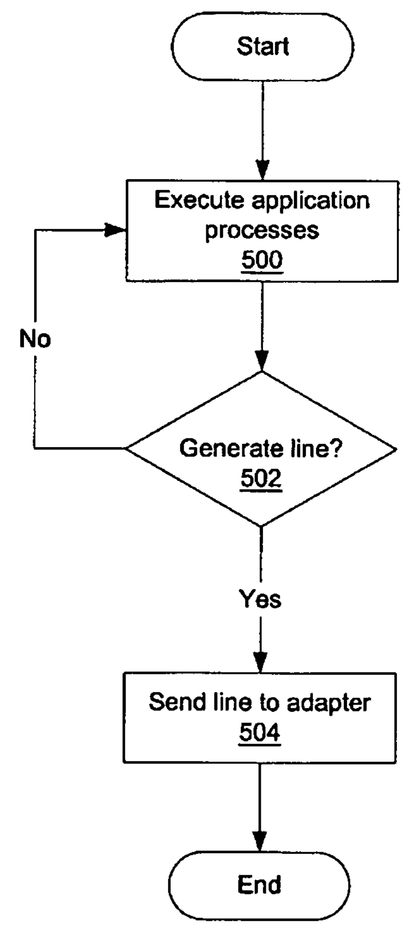


Figure 7

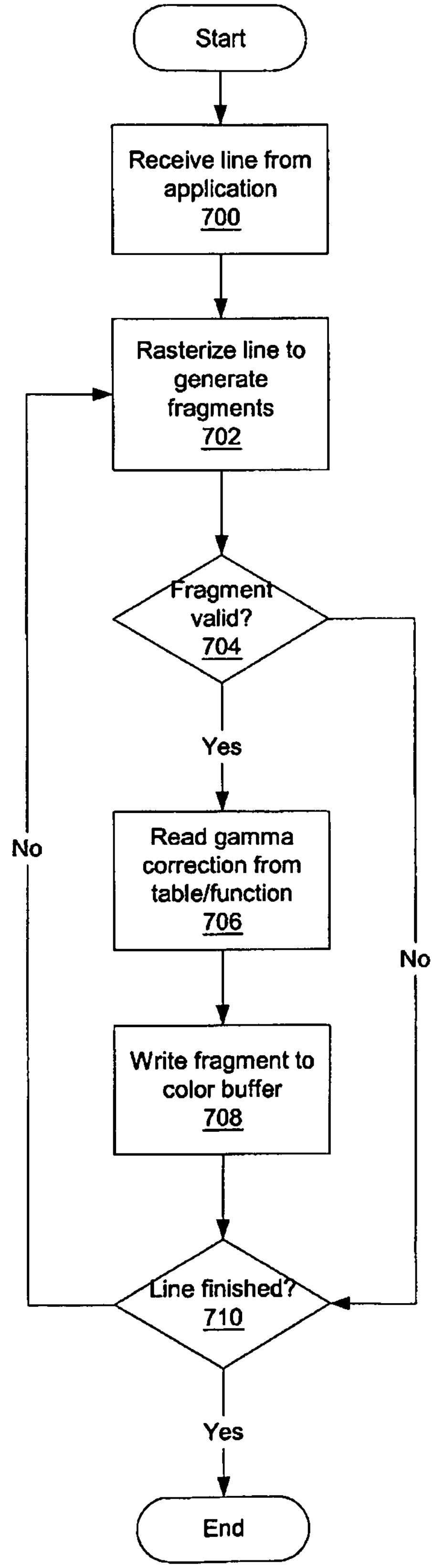
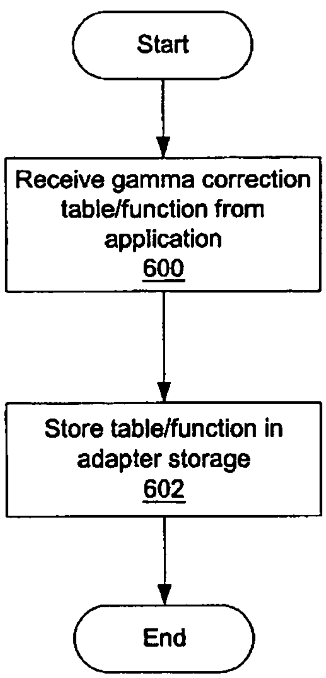


Figure 6



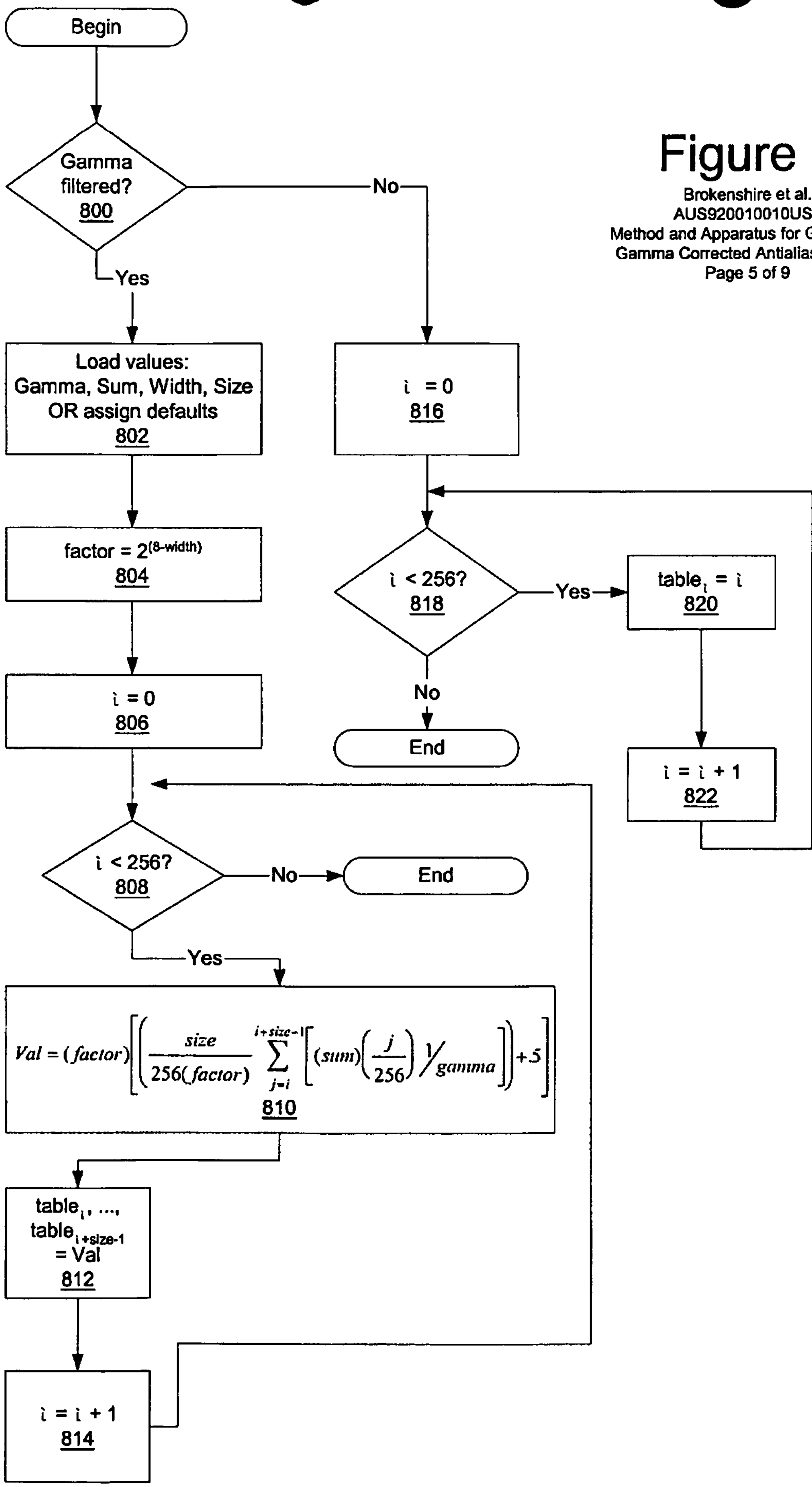


Figure 8

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Figure 9

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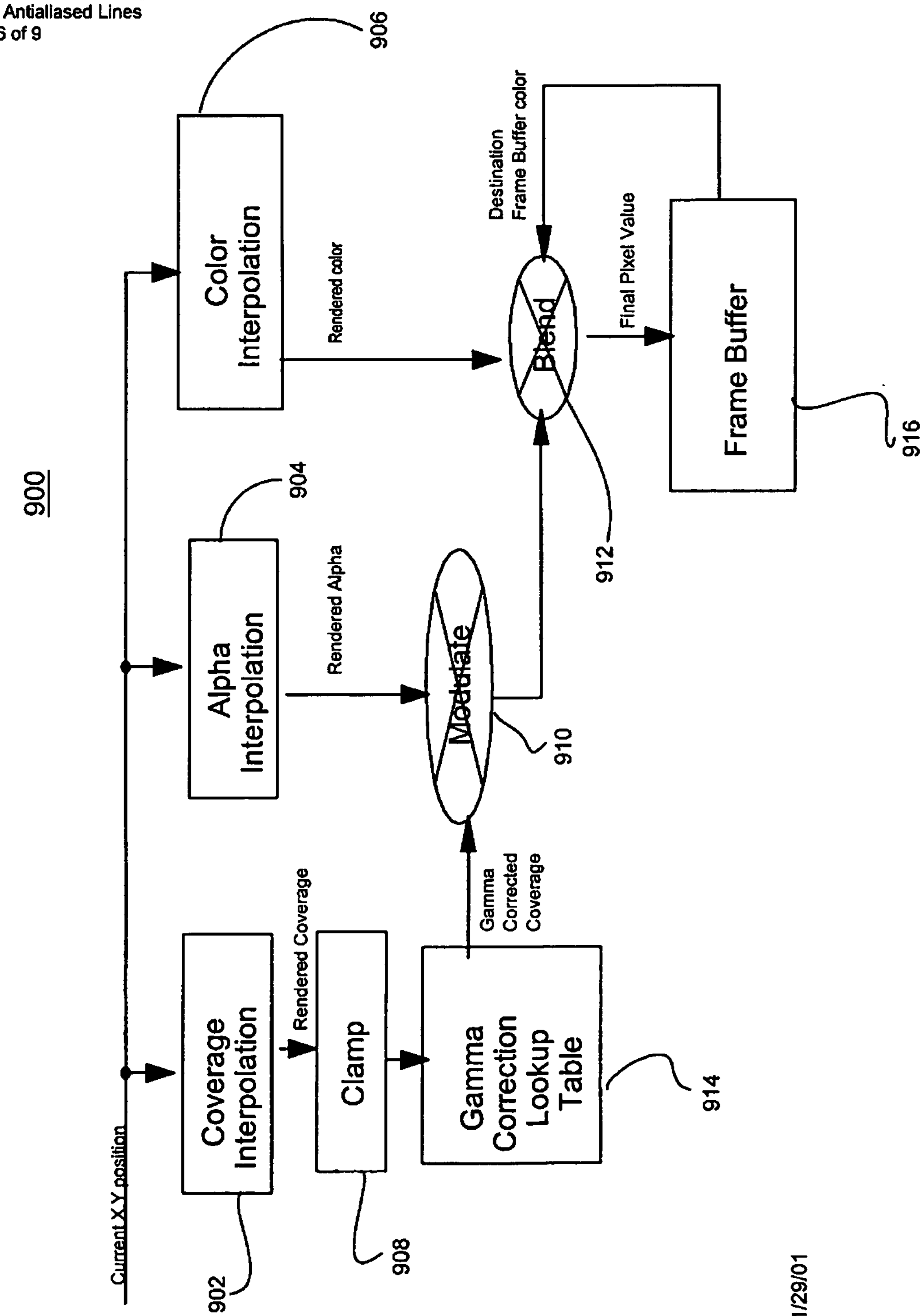

JSL 1/29/01

```
if (env = getenv("_OGL_GAMMA_FILTER")){
/* Gamma filtered */
    float gamma;
    float sum;
    int     factor;
    int     width;
    int     size;

    gamma = 1.0;
    gamma = atof(env);

    width = 8;
    if (env = getenv("_OGL_GAMMA_TABLEWIDTH"))
      width = atoi(env);
    factor = (int)pow(2.0, (double) (8.0-width));

    sum = 256.0;
    if (env = getenv("_OGL_GAMMA_SUM"))
      sum = atof(env);

    size = 256;
    if (env = getenv("_OGL_GAMMA_TABLESIZE")){
      size = atoi(env);
     switch (size) {
     case 16:
       for (i=0; i<256; i+=16) {
         a = sum * pow((double)(i/256.0), (double)(1.0 / gamma));
         b = sum * pow((double)((i+1)/256.0), (double)(1.0 / gamma));
         c = sum * pow((double)((i+2)/256.0), (double)(1.0 / gamma));
         d = sum * pow((double)((i+3)/256.0), (double)(1.0 / gamma));
         e = sum * pow((double)((i+4)/256.0), (double)(1.0 / gamma));
         f = sum * pow((double)((i+5)/256.0), (double)(1.0 / gamma));
         g = sum * pow((double)((i+6)/256.0), (double)(1.0 / gamma));
         h = sum * pow((double)((i+7)/256.0), (double)(1.0 / gamma));
         i = sum * pow((double)((i+8)/256.0), (double)(1.0 / gamma));
         j = sum * pow((double)((i+9)/256.0), (double)(1.0 / gamma));
         k = sum * pow((double)((i+10)/256.0), (double)(1.0 / gamma));
         l = sum * pow((double)((i+11)/256.0), (double)(1.0 / gamma));
         m = sum * pow((double)((i+12)/256.0), (double)(1.0 / gamma));
         n = sum * pow((double)((i+13)/256.0), (double)(1.0 / gamma));
         o = sum * pow((double)((i+14)/256.0), (double)(1.0 / gamma));
         p = sum * pow((double)((i+15)/256.0), (double)(1.0 / gamma));
        AAFilterTable[i] = AAFilterTable[i+1] =
        AAFilterTable[i+2] = AAFilterTable[i+3] =
        AAFilterTable[i+4] = AAFilterTable[i+5] =
        AAFilterTable[i+6] = AAFilterTable[i+7] =
```

Figure 10A

1000

```
      AAFilterTable[i+8] = AAFilterTable[i+9] =
      AAFilterTable[i+10] = AAFilterTable[i+11] =
      AAFilterTable[i+12] = AAFilterTable[i+13] =
      AAFilterTable[i+14] = AAFilterTable[i+15] =
              (int)((((a + b + c + d + e + f +
              (int)((((a + b + c + d + e + f +
                 g + h + ii + j + k + m +
                 n + o + p)/(16.0*factor)) + 0.5)*factor);

   }
   break;
  case 32;
   for (i=0; i<256; i+=8) {
      a = sum * pow((double)(i/256.0), (double)(1.0 / gamma));
      b = sum * pow((double)((i+1)/256.0), (double)(1.0 / gamma));
      c = sum * pow((double)((i+2)/256.0), (double)(1.0 / gamma));
      d = sum * pow((double)((i+3)/256.0), (double)(1.0 / gamma));
      e = sum * pow((double)((i+4)/256.0), (double)(1.0 / gamma));
      f = sum * pow((double)((i+5)/256.0), (double)(1.0 / gamma));
      g = sum * pow((double)((i+6)/256.0), (double)(1.0 / gamma));
      h = sum * pow((double)((i+7)/256.0), (double)(1.0 / gamma));
      AAFilterTable[i] = AAFilterTable[i+1] = AAFilterTable[i+2] =
      AAFilterTable[i+3] = AAFilterTable[i+4] = AAFilterTable[i+5] =
      AAFilterTable[i+6] = AAFilterTable[i+7] = (int)((((a + b + c + d + e + f + g + h)/(8.0*factor)) + 0.5)*factor);
   }
   break;
  case 64;
   for (i=0; i<256; i+=4) {
      a = sum * pow((double)(i/256.0), (double)(1.0 / gamma));
      b = sum * pow((double)((i+1)/256.0), (double)(1.0 / gamma));
      c = sum * pow((double)((i+2)/256.0), (double)(1.0 / gamma));
      d = sum * pow((double)((i+3)/256.0), (double)(1.0 / gamma));
      AAFilterTable[i] = AAFilterTable[i+1] =
      AAFilterTable[i+2] = AAFilterTable[i+3] =
         (int) ((((a + b + c + d)/4.0*factor)) + 0.5*factor);
   }
   break;
  case 128;
   for (i=0; i<256; i+=2) {
      a = sum * pow((double)(i/256.0), (double)(1.0 / gamma));
      b = sum * pow((double)((i+1)/256.0), (double)(1.0 / gamma));
      AAFilterTable[i] = AAFilterTable[i+1] =
         (int) ((((a + b)/2.0*factor)) + 0.5*factor);
   }
   break;
  case 256;
   for (i=0; i<256; i++) {
      AAFilterTable[i] =
         (int)((((sum * pow((double)(i/256.0), (double)(1.0 / gamma)))/factor) + 0.5)*factor);
   }
   break;
  }
}
```

Figure 10B

Figure 11

Assumptions: Floating point coverages are defined in the normalized 0.0 to 1.0 range in which 0.0 corresponds to no coverage and 1.0 corresponds to full coverage. Fixed point coverages are defined in the range 0 to size - 1.

1100

```
float * GenFloatingPtGammaTable(int   size,
                                float gamma)
{
  int i;
  float *table;

  if (table = malloc(sizeof(float)*size)) {
    for (i=0; i<size; i++) {
      table[i] = (float)pow((double)i/(size-1), (double)(1.0/gamma));
    }
  }
  return (table);
}


int * GenFixedPtGammaTable(int   size,
                           float gamma)
{
  int i;
  int *table;
  float val;

  if (table = malloc(sizeof(int)*size)) {
    for (i=0; i<size; i++) {
      val = (float)pow((double)i/(size-1), (double)(1.0/gamma));
          table[i] = (int)((size-1) * val + 0.5);
    }
  }
  return (table);
}
```